REMARKS

This communication is in response to the Office Action mailed on February 7, 2005. In the Office Action claims 1-22 were pending of which claims 1-22 were rejected. With this amendment, claims 1, 5, 10, 12, 19, and 21 have been amended and claims 4, 9, 11 and 20 have been cancelled.

Independent claim 1 and related dependent claims 2-9

On page 2 of the Office Action, claims 1-3 and 6-8 were rejected under 35 U.S.C. §102(b) as being anticipated by Su et al. (hereinafter "Su", U.S. Patent No. 5,418,717). Further, on page 4 of the Office Action, claims 4, 5, and 9 were rejected under 35 U.S.C. §103(a) as being unpatentable over Su. in view of Kucera et al. (hereinafter "Kucera", U.S. Patent No. 4,868,750).

Applicant notes that claim 1 has been amended to include a limitation substantially similar to the limitation previously contained in claims 4 and 9. Claims 4 and 9 have subsequently been cancelled. Claim 1, as amended, recites "generating a score by determining a mutual information metric based on the phrase level and the word class." In section 11, the Office Action indicated, and Applicant agrees, that Su does not disclose determining a mutual information metric. The Office Action further stated that Kucera does suggest determining a mutual information metric.

Kucera uses collocation probabilities to assign tags to words indicative of syntactic features of the word along a single level. The most probable tags are attached to words based on adjacent tags. Simply put, Kucera uses collocation probabilities to assign tags based on the classes of words in a single level in the text segment. However, Applicant notes Kucera does not teach or suggest determining collocation probabilities based on the

phrase level of the node since Kucera only uses a single level of tags when determining collocation probabilities.

Su utilizes a score function for disambiguating or truncating ambiguities on the basis of composite scores. Syntactic, lexical, and semantic scores are used in the scoring function. The lexical score provides a single level of scoring that provides the probability of a sequence of parts of speech given a word sequence. The syntactic score provides a score for syntactic structures, which takes into account the phrase level of a node. However, Applicant notes, as mentioned in the Office Action, Su does not teach or suggest using mutual information in either the lexical score or the syntactic score.

Applicant respectfully submits that employing the collocation probability in Kucera with Su would not achieve a mutual information metric determined based on both the <u>phrase level</u> for the node and the word class for at least one word that neighbors the text spanned by the node, as recited in claim 1. As mentioned above, the collocation probability in Kucera is determined along a single level and is not based on the phrase level of a node. Thus, the collocation score in Kucera is a way to form the lexical score in Su, since both scores are for a single level of tags. Given the two references, those skilled in the art may replace the lexical scoring technique of Su with the collocation score. However, there is no suggestion in either Kucera or Su for extending the collocation score in Kucera by applying it to the level of phrase nodes.

In addition, neither reference indicates how the collocation score of Kucera could be modified to accommodate the phrase level of the nodes. Note for instance that the syntactic score in Su includes information on the nodes directly below the current phrase node when determining the probability of the current phrase node. $(P(\{A\}|\{l_7, B, C, r_7, \})$, col. 13 of Su). There is no suggestion in either reference that would show how such

information could or should be used with the collocation score of Kucera. In sum, Applicant respectfully submits that claim 1 is neither taught nor suggest by the combination of cited references. As such, claims 1-3 and 5-9 are patentable over the cited art.

Additionally, Applicant believes claim 7 is additionally patentable over the cited art. Claim 7 recites generating a score based in part on all of the identified word classes for a word to the left and a word to the right of the text spanned by the node. Neither Su nor Kucera teach or suggest generating a score based on <u>all possible</u> word classes for a word to the left and a word to the right of the current node. Accordingly, Applicant respectfully submits that claim 7 is independently patentable over Su.

Independent claim 10 and related dependent claims 12-18

On page 4, the Office Action indicated that claims 10-13 and 16-18 were rejected under 35 U.S.C. §103(a) as being unpatentable over Su in view of Kucera Applicant believes the rejection contains a typographical error and should have also contained claims 14 and 15 based on the rejection in section 15 on page 8.

Applicant notes that claim 10 has been amended to contain the limitation previously contained in claim 11. Claim 11 has subsequently been cancelled. Claim 10, as amended, recites generating a score "based in part on mutual information determined based on a phrase level of the node formed by the rule engine and at least one word in the text segment." Applicant submits, as mentioned above, if combined, employing the collocation probability in Kucera with the scoring function taught in Su would not achieve a score based on mutual information determined based on the <u>phrase level</u> for the node. Accordingly, Applicant respectfully submits that claim 10, and

claims 12-18 which depend therefore, are neither taught nor suggest by the combination of Su and Kucera and are in allowable form.

Further, Applicant believes that claim 13 is independently patentable. Claim 13 recites determining the mutual information for a node "based on all possible word classes for a word in the text segment." In the rejection of claim 13, the Office Action indicated Kucera discloses the limitations recited in claim 13 (*annotating each word with possible tags*, Col. 1, Ln. 65 – Col. 2, Ln. 3). However, Kucera does not teach or suggest determining a mutual information score for a node using all possible word classes for a word in the text segment. Instead, Kucera determines a separate collocation score for each possible sequence of tags. In Kucera, there is no one score that uses all possible word classes for a word. Instead, each collocation score is based on a single tag for each word in Kucera. In contrast, claim 13 recites using all the possible word classes to determine the mutual information for a node. Thus, all of the possible word classes of a word are taken into account when forming the mutual information metric for the node. This is not shown or suggested in either Kucera or Su.

Independent claim 19 and related dependent claims 20-22

On page 4 of the Office Action, claims 19-22 were rejected under 35 U.S.C. §103(a) as being unpatentable over Su in view of Kucera.

Applicant notes that claim 19 has been amended to contain the limitation previously contained in claim 20. Claim 20 has subsequently been cancelled. Claim 19, as amended, recites scoring a syntax node, "the score being a mutual information score that is based in part on a phrase level of the syntax node." As mentioned above, employing the collocation probability in Kucera with the scoring function taught in Su

would not achieve a score based on mutual information determined based in part on the <u>phrase level</u> for the node. Applicant respectfully submits that claim 19, and claims 21 and 22 which depend therefrom, are neither taught nor suggest by the combination of Su and Kucera and is in allowable form.

Further, Applicant believes claim 21 to be independently patentable. As mentioned above in connection with claim 13, Kucera does not teach or suggest a mutual information score "based on all possible word classes of a word in the text segment."

Conclusion

In view of the foregoing, reconsideration and allowance of all pending claims, namely claims 1-3, 5-8, 10, 12-19, 21 and 22, are respectfully requested.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

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